ADVANCED MANUFACTURING (CNC)-MACHINE TOOL SETUP, OPERATION AND PROGRAMMING (AAS)

Catalog Effective Term: Fall 2024
Program Code: APMTOP
Credential: Associate in Applied Science

In this program, students will demonstrate proficiency in the operation of automated design and machine tool equipment. Competencies in machine operation (CNC), computer aided design and manufacturing (CAD/CAM), manual programming, and processing materials will be developed. In addition, students will hone skills in the manufacturing and troubleshooting of part programs used for advanced manufacturing systems. Students will apply problem-solving skills learned in the program to create innovative solutions for real-world manufacturing challenges in preparation for entry-level positions within the advanced manufacturing field including CNC machining.

Students with technology interests who enjoy working with their hands like gaming, manipulating code, robotics, 3D printing are suited for this line of work.

Articulation

Eastern Michigan University, BS degree

Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: http://www.wccnet.edu/learn/transfer-wcc-credits/articulation-agreements.php.

Students may elect to take optional courses to meet MTA. Please refer to the WCC MTA Transfer Agreement web page http://www.wccnet.edu/learn/transfer-wcc-credits/mta.php for more information.

Program Admission Requirements

- College Level Reading and Writing levels of 6 and Math Level 2 are required.
- An Academic Math Level of 4 is required to enroll in NCT 121 Manual Programming and NC Tool Operation.

Minimum Credits Required for the Program: 62

Full-Time Students

Course	Title	Credits
First Semester		
MEC 100	Materials and Processes	3
MEC 101	Blueprint Reading for Manufacturing	2
NCT 100	Foundation Concepts for Manufacturing (CNC)	3
Math Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#math)		3
Writing Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#writing)		3
Credits		**14**
Second Semester		
NCT 101	Introduction to Computerized Machining (CNC) - I	2
NCT 110	Introduction to Computerized Machining (CNC) - II	2
NCT 120	Introduction to 2D CAD CAM Programming and Applications	2
WAF 103	Introduction to Gas Tungsten Arc Welding	2
Arts/Human. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#arthuma)		3
Speech/Comp. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#writing)		3
Credits		**14**
Third Semester		
NCT 123	2D CAD CAM CNC Programming for Mills and Lathes	2
Nat. Sci. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#naturalsci)		3
Credits		**5**
Fourth Semester		
ELE 111	Electrical Fundamentals	4
NCT 121	Manual Programming and NC Tool Operation	4
NCT 201	Geometric Dimensioning and Tolerancing (GD&T)	2
Restricted Elective: Students may choose any ELE, MEC, NCT, ROB course not already listed.		4
Credits		**14**
Fifth Semester		
MEC 201	Mechanisms and Introduction to Mechatronics	2
NCT 221	Advanced Manual Programming and NC Tool Operation	4
NCT 244	Advanced Manufacturing Capstone (CNC)	3
Soc. Sci. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#socbehavsci)		3
Restricted Elective: Student may choose any ELE, MEC, NCT, ROB course not already listed.		3
Credits		**15**
Total Credits		**62**

Part-Time Students

Course	Title	Credits
First Semester		
MEC 101	Blueprint Reading for Manufacturing	2
NCT 100	Foundation Concepts for Manufacturing (CNC)	3
Math Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#math)		3
Credits		**8**
Second Semester		
MEC 100	Materials and Processes	3
NCT 101	Introduction to Computerized Machining (CNC) - I	2

NCT 110	Introduction to Computerized Machining (CNC) - II	2
NCT 120	Introduction to 2D CAD CAM Programming and Applications	2
	Credits	**9**
Third Semester		
NCT 123	2D CAD CAM CNC Programming for Mills and Lathes	2
Writing Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#writing)		3
	Credits	**5**
Fourth Semester		
MEC 201	Mechanisms and Introduction to Mechatronics	2
NCT 121	Manual Programming and NC Tool Operation	4
WAF 103	Introduction to Gas Tungsten Arc Welding	2
	Credits	**8**
Fifth Semester		
NCT 221	Advanced Manual Programming and NC Tool Operation	4
Restricted Elective: Student may choose any ELE, MEC, NCT, ROB course not already listed.		3
	Credits	**7**
Sixth Semester		
Soc. Sci. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#socbehavsci)		3
Speech/Comp. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#writing)		3
	Credits	**6**
Seventh Semester		
ELE 111	Electrical Fundamentals	4
NCT 201	Geometric Dimensioning and Tolerancing (GD&T)	2
	Credits	**6**
Eighth Semester		
NCT 244	Advanced Manufacturing Capstone (CNC)	3
Restricted Elective: Student may choose any ELE, MEC, NCT, ROB course not already listed.		4
	Credits	**7**
Ninth Semester		
Arts/Human. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#arthuma)		3
Nat. Sci. Elective(s) (https://coursecatalog.wccnet.edu/academics/general-education/#naturalsci)		3
	Credits	**6**
	Total Credits	**62**